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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,472	06/02/2000	Michiaki Sakamoto	157330/99	6609
21254	7590	03/22/2004		
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			EXAMINER RUDE, TIMOTHY L	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 03/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/585,472

Applicant(s)

SAKAMOTO, MICHIAKI

Examiner

Timothy L Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 2,7-10,15 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,11-14,16-20 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claims 1, 2, 6, and 7 are amended. Objections to claims 1 and 2 are withdrawn.

Election/Restrictions

2. Claims 2, 7-10, 15, and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected sub-species DB (embodiment two, Figures 4(a) through 5(b)), there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 20031121.

Applicant's election with traverse of invention II, species D, and sub-species DA in Paper No. 20031121 is acknowledged. The traversal is on the ground(s) that claims are worded such that restriction is improper, claims have been searched once, and there are arguments as to alternate interpretations of the claim language. These arguments are not persuasive. It is respectfully pointed out that restriction is of the subject matter, not the claim language; it is impossible to prevent or circumvent restriction with specific claim language, however, claims may be amended to avoid limitations drawn to non-elected inventions and species. As to search, Applicant's prior arguments make it clear that the restricted subject matter is patentably distinct and in need of considerable further consideration and search. Although said search might overlap in part, much additional search would be required to make a determination as to

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patentability of the restricted subject matter. Lastly, it is respectfully pointed out that restriction is based upon broad interpretation of claims as they were presented at the time the restriction was made. Alternate interpretations merely serve to obviate the need to further limit claims to avoid reading on non-elected inventions and species, and subsequent amendments may further limit claims to avoid reading on non-elected inventions and species. In the instant Application, the claims presently stand amended in such a way as to avoid limitations on non-elected inventions and species with the exception of claims 2, 7-10, 15, and 21, drawn to nonelected sub-species DB (embodiment two, Figures 4(a) through 5(b)).

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-6, 11-14, 16-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhong et al (Zhong) USPAT 5,994,721 in view of Ohta et al (Ohta) USPAT 6,208,399 B1.

As to claim 1, Zhong discloses (entire patent, especially Figures 6(a)-6(c) and 11) an active matrix liquid crystal display device (col. 8, line 22 through col. 11, line 28), comprising: a first substrate, 19, and a second substrate, 51, at least one of said first substrate and said second substrate being transparent; a plurality of scanning lines, 7, formed on said first substrate; a plurality of signal lines, 5, formed on said first substrate crossing said scanning lines in a matrix manner a plurality of thin film transistors, each said thin film transistor respectively formed at an intersection of said scanning lines and said signal lines, each said thin film transistor comprising: a gate electrode, 17, formed on said first substrate; a gate insulation layer, 21, formed on said gate electrode; a semiconductor layer, 23, formed on said gate insulation layer; a drain electrode, 29, formed on a first portion of said semiconductor layer and a first portion of said gate insulation layer; and a source electrode, 31, formed on a second portion of said semiconductor layer and a second portion of said gate insulation layer; at least one color filter, 101, formed on said first substrate; a plurality of pixel electrodes, 3, each respectively connected to one of said thin film transistors through a contact hole, 35, and each respectively formed on one of said at least one color filter; a counter electrode, 49, formed on said second substrate; and a liquid crystal layer, 45, between said first substrate and said second substrate, said liquid crystal layer being driven by electric fields between said pixel electrodes and said counter electrode to thereby make a display, wherein said color filter is formed directly on said first substrate (per Figure 6(c)) in most of a light transmission region within a pixel area surrounded by said scanning lines and said signal lines, and said color film comprises a stack of layers that

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reduces a thickness of material of said color filter near said contact hole such that a portion of said stack of layers remains in place adjacent to said contact hole (per Figure 6(c)).

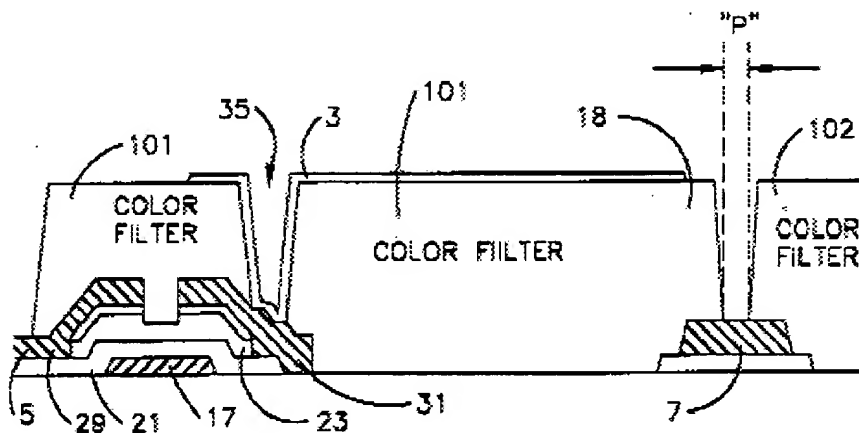


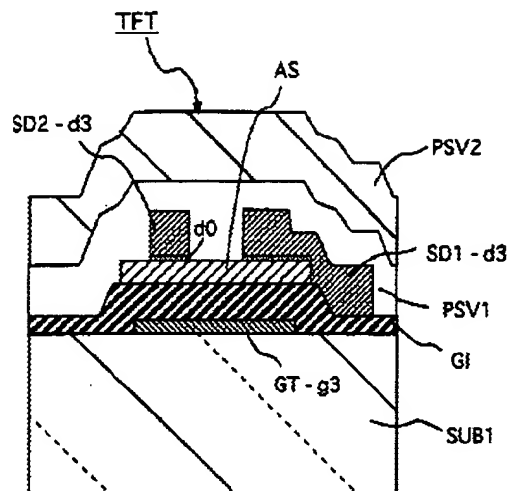
FIG. 6(c)

Zhong does not explicitly disclose a display comprising a passivation film formed on said thin film transistors; at least one color filter additionally covering said passivation film; wherein said passivation film and said color film form a stack of layers that reduces a thickness of material of said color filter near said contact hole such that a portion of said passivation film remains in place adjacent to said contact hole.

Ohta teaches the use of a passivation film exclusively over and in direct physical contact with the TFT portions to protect a back channel portion of the TFT and thereby stabilize a threshold voltage, V_{th} (col. 8, lines 34-67) without warping of the substrate caused by the stress of said passivation layer. Please note that modification of the device of Zhong with the passivation film of Ohta would result in said passivation film and said color film form a stack of layers that reduces a thickness of material of said

color filter near said contact hole such that a portion of said passivation film remains in place adjacent to said contact hole.

FIG. 3



Ohta is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a passivation film exclusively over and in direct physical contact with the TFT portions wherein said passivation film and a color film form a stack of layers that reduces a thickness of material of the color filter near said contact hole such that a portion of said passivation film remains in place adjacent to said contact hole to protect a back channel portion of the TFT and thereby stabilize a threshold voltage, V_{th} , without warping of the substrate caused by the stress of said passivation layer.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Zhong with the passivation film exclusively over and in direct physical contact with the TFT portions of Ohta wherein said passivation film and a color film form a stack of layers that reduces a thickness of material of the color filter near said contact hole such that a portion of said passivation film remains in place adjacent to said contact hole to protect a back channel portion of the TFT and thereby stabilize a threshold voltage, V_{th} , without warping of the substrate caused by the stress of said passivation layer.

As to claim 3, Zhong teaches the use of a color filter, 101, around said contact hole, 35, that is thinner than the color filter in said light transmission region (Figure 6c).

As to claims 4 and 5, Zhong in view of Ohta teach the display of claim 1 above.

Zhong in view of Ohta does not teach a color pigment or dye wherein a difference in level generated on a surface of the organic film being not more than $0.3\text{ }\mu\text{m}$

Zhong teaches the use of a color filter, 101, consisting of a photosensitive organic film (resist) with a color pigment or dye (col. 16, lines 43-46) that is substantially flat on the top surface (as illustrated in Figure 6c), therefore a difference in level generated on a surface of the organic film being not more than $0.3\text{ }\mu\text{m}$ as a results effective variable for reducing line-pixel capacitances (Abstract) (MPEP 2144.05 II B).

Zhong is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add a difference in level generated on a surface of

the organic film being not more than 0.3 μm as a results effective variable for reducing line-pixel capacitances which requires only routine experimentation.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Zhong in view of Ohta by adjusting the difference in level generated on a surface of the organic film per Ohta to be not more than 0.3 μm as a results effective variable for reducing line-pixel capacitances.

As to claim 6, the conventional method of manufacturing a RGB active matrix liquid crystal display device comprises steps of: forming a plurality of scanning lines on a first substrate; forming a plurality of signal lines crossing the plurality of scanning lines in a matrix manner; forming a plurality of thin film transistors at intersections of the plurality of scanning lines and the plurality of signal lines, respectively; forming a pixel electrode connected to said thin film transistors; forming a counter electrode on a second substrate; injecting liquid crystal between said first substrate and said second substrate and sealing the liquid crystals, wherein said method further comprising the steps of: forming a passivation film to protect each of said thin film transistors. The additional steps of removing part of a gate insulating layer and said passivation film of each of said tin film transistors in a region surrounded by said signal lines and said scanning lines; forming a color filter made of a photosensitive color resist; and forming a transparent conductive film are taught by Zhong in view of Ohta and are also obvious given the device structure above. Furthermore, Applicant's arguments in response to

the restriction requirement (Paper Nos. 20031121 and 20040105) are considered an acknowledgement that the present method claims are not patentably distinct from the present device claims.

As to claim 11, given the structure of Zhong (Figure 6c) and a passivation layer of Ohta exclusively on and in direct physical contact with the TFT, the vias, 35, formed in the color filters, 101, would necessarily be also formed in the passivation layer in order to allow electrical contact with source electrodes, 31 (consistent with both Zhong and Ohta).

As to claim 12, Zhong discloses a substantially flat color filter, 101, so that a first portion of said color filter filling said pixel opening is larger in thickness than a second portion of said color filter covering said passivation film per Figure 6(c).

As to claim 13, Zhong discloses a gate insulation layer, 21, with a hole corresponding to the pixel opening that is filled with said color filter, 101.

As to claim 14, Given the structure of Zhong (Figure 6c) and the passivation layer on the TFT of Kawabe, the color filter extends (as illustrated in Figure 6c) and it would cover said transistor with an intervention of said passivation film.

As to claim 16, Zhong discloses signal lines and a color filter terminating above the signal line in Figure 1.

As to claims 17-20 and 22, the method of manufacturing recitations of forming, providing, extending, etc. are taught by Zhong in view of Ohta and are also obvious given the device structure above. Furthermore, Applicant's arguments in response to the restriction requirement (Paper Nos. 20031121 and 20040105) are considered an acknowledgement that the present method claims are not patentably distinct from the present device claims.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 3-6, 11-14, 16-20, and 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Monday through Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



tlr

Timothy L Rude
Examiner
Art Unit 2871



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